Cleaning and lubricating the X-axis lead screw (Form 3)

formlabs

Required Supplies:

- Lead screw cleaning tool (provided by Formlabs Support)
- Lithium-based grease (provided by Formlabs Support)
- Applicator stick for grease
- Paper towels
- Nitrile gloves

Estimated time: 5–10 minutes
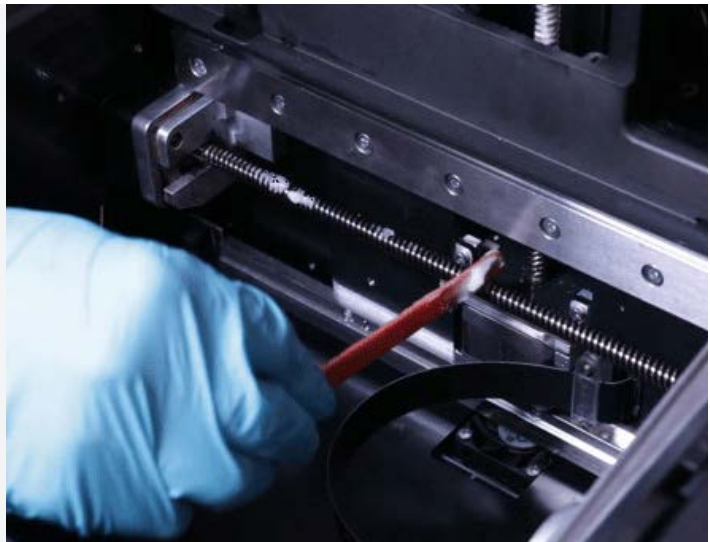
Over time, the anti-backlash nut on the X-axis lead screw can degrade and leave a black residue in the grease on the lead screw. This debris can cause the Light Processing Unit (LPU) housing to stall or generate noise during printing.

Use this guide to clean and lubricate the X-axis lead screw on a Form 3.

> **WARNING:** Resin may cause skin irritation or an allergic skin reaction. Wear gloves when handling liquid resin or resin-coated surfaces. Wash skin with plenty of soap and water.

Preparing the workspace

OVERVIEW: *Prepare the Form 3 and a dust-free workspace for cleaning and lubricating the X-axis lead screw.*

STEP 1: REMOVE THE BUILD PLATFORM
Remove the build platform first to avoid dripping resin into the printer cavity.

STEP 2: REMOVE THE RESIN CARTRIDGE
Remove the resin cartridge and close the vent cap to prevent resin from dripping off the bite valve and into the printer.

STEP 3: REMOVE AND STORE THE RESIN TANK
Remove the resin tank, place it in the resin tank carrier, and cover it with its lid. Set the carrier and tank aside on a clean, flat surface.

> **NOTICE:** Wear gloves and hold the resin tank by the tank grips on either side to avoid contamination or damage to the underside of the tank.

STEP 4: UNPLUG THE PRINTER

Disconnect the power cable before continuing with maintenance. Do not perform maintenance on the printer while it is connected to power.

> **WARNING:** Moving parts and lead screws present crushing and tangling hazards. Be sure that the printer is unplugged from its power source and powered down before interacting with the lead screw.

STEP 5: PREPARE THE WORKSPACE

Clear a workspace around your printer. Ensure that the workspace is well-ventilated and free of dust.
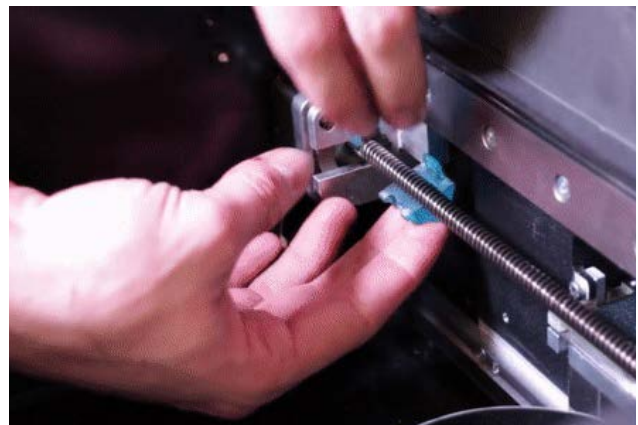
Cleaning the X-axis lead screw

OVERVIEW: *Remove the contaminated grease from the X-axis lead screw.*
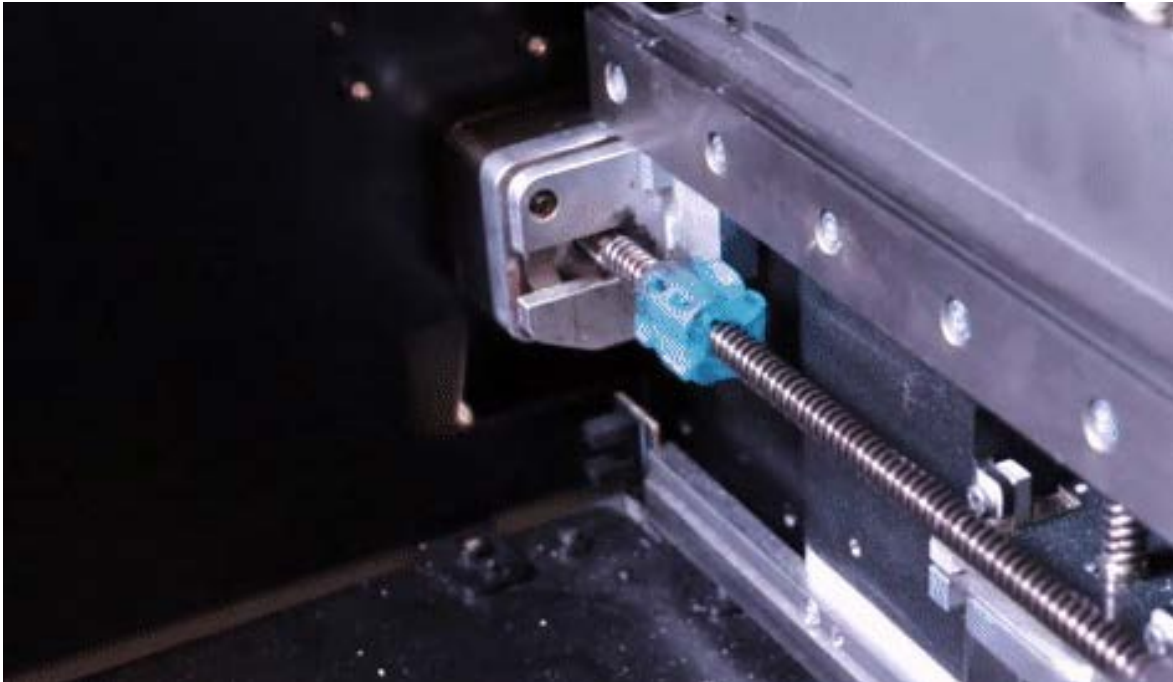
STEP 1: WIPE THE X-AXIS LEAD SCREW

Gently wipe down the X-axis lead screw with a dry paper towel. To watch a short video demonstration, click here.

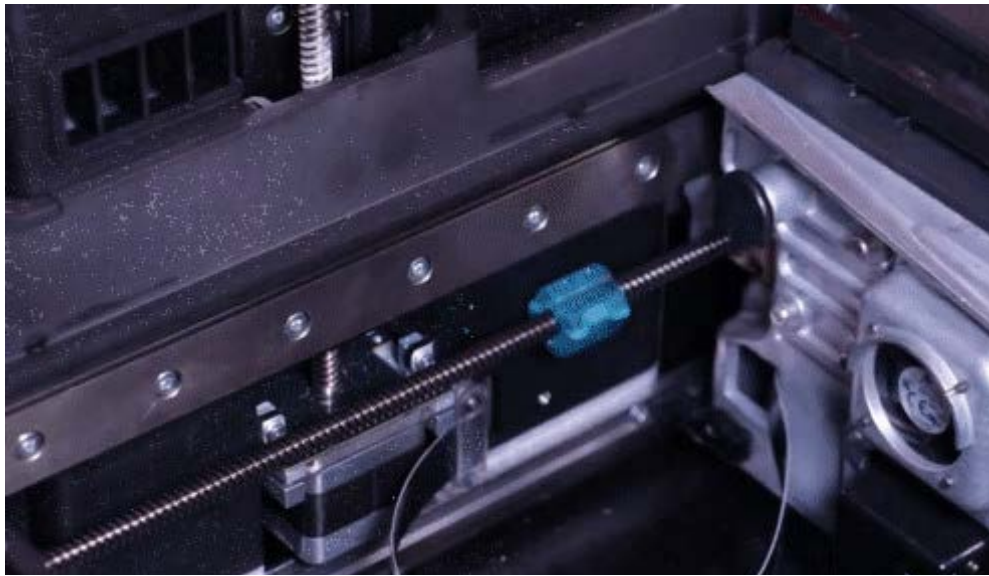**STEP 2: ATTACH THE LEAD SCREW THREAD CLEANING TOOL**

Seat one half of the lead screw thread cleaning tool on the threads on the left side of the X-axis lead screw. Snap the other half of the tool onto the first half, fully enclosing the lead screw. The tool should snap closed without significant resistance and should spin freely on the lead screw. To watch a short video demonstration, click here.

STEP 3: ROTATE THE LEAD SCREW THREAD CLEANING TOOL
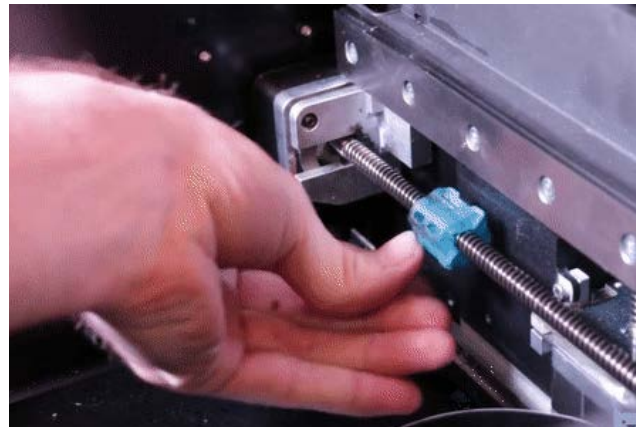
Rotate the top of the thread cleaning tool toward the front of the printer. The thread cleaning tool moves along the X-axis lead screw toward the right of the printer.
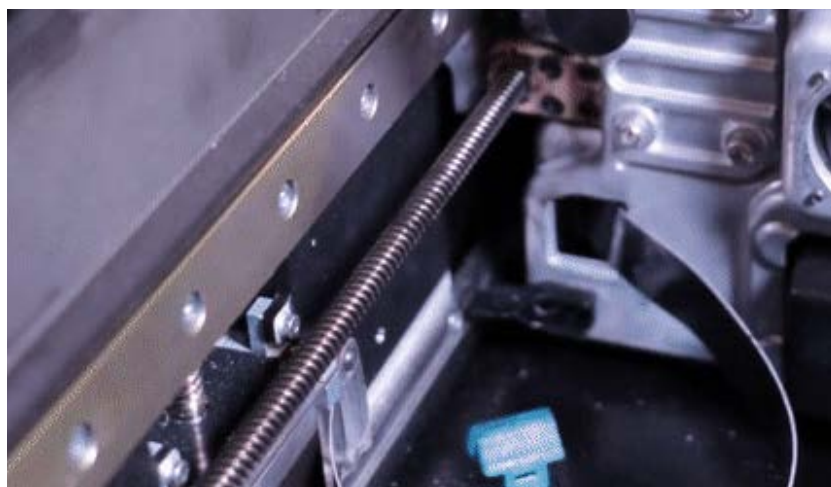
Continue rotating the thread cleaning tool until it reaches the LPU housing at the right end of the X-axis lead screw. To watch a short video demonstration, click here.
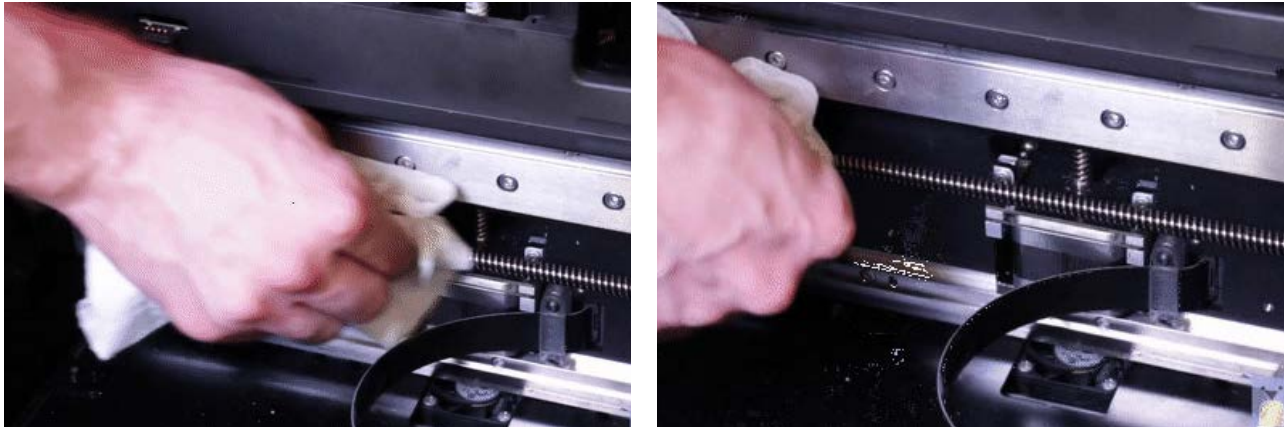
STEP 4: REMOVE THE LEAD SCREW THREAD CLEANING TOOL

Unclip the lead screw thread cleaning tool. Remove the tool from the printer cavity. To watch a short video demonstration, click here.

STEP 5: WIPE THE X-AXIS LEAD SCREW

Gently wipe down the X-axis lead screw with a dry paper towel. To watch a short video demonstration, click here.

Lubricating the X-axis lead screw

OVERVIEW: *Apply new lubricant to the X-axis lead screw.*

> **WARNING:** Lithium-based grease may cause skin irritation or an allergic skin reaction. Wear gloves when applying grease to the X-axis lead screw.

STEP 1: APPLY GREASE TO THE X-AXIS LEAD SCREW

Place a small amount of lithium-based grease (approximately two pea-sized drops in total) on an applicator, such as a tongue depressor or coffee stirrer.

Apply small amounts of the new grease along the length of the X-axis lead screw. To watch a short video demonstration, click here.

STEP 2: SPREAD THE GREASE ALONG THE LEAD SCREW

Using your gloved fingers, spread the grease along the X-axis lead screw. To watch a short video demonstration, click here.

Finalizing the repair

OVERVIEW: *After cleaning and lubricating the X-axis lead screw, perform final checks.*

STEP 1: POWER ON THE PRINTER
Close the printer cover and connect the power cable to the printer and the power supply. The printer will initialize and the LPU housing will move along the X-axis lead screw. This will further spread the grease along the lead screw. Ensure that the LPU housing moves smoothly, without making noise or stalling.